—Safety Works

Technical Bulletin #TB109

Date: August 17, 2005

Subject: 140B Methane Monitor Electro-Magnetic Interference Protection

CSE Corporation has determined that in a few cases the potential for Electro-Magnetic Interference (EMI) generated from the mining machinery electrical systems that the 140B methane monitor system is installed on may have disrupted the 140B electrical circuit in such a way as to cause intermittent disruption of the mining machinery. This disruption appears to be intermittent in nature and can be resolved by following a few simple measures of Best Practice for electrical installations.

CSE140B methane monitors are integrated into larger electrical systems of mining machinery as an integral part of the overall system safety. The affects of EMI must be addressed when integrating low voltage systems such as the 140B to high power, high frequency devices of the mining machinery, to ensure the proper operation of the 140B system. Observing the following guidelines for new installations or any system that has displayed the symptoms described below will reduce the possibility of disruptions, malfunctions and damage to the 140B methane monitor system due to EMI.

1. 140B Conductors that carry low voltage signals **should not** be routed in close proximity to high current, high voltage, and high frequency conductors. In situations where space constraints prohibit the physical separation of low voltage conductors and noise sources, properly terminated, shielded cable should be used.

2. 140B components such as power supplies, sensors, and display units **should not** be placed in close proximity to sources of EMI such as motor drives and cables or any high frequency switching equipment.

3. 140B components that are mounted inside customer enclosures must have adequate clearance to prevent direct contact of electrical components on the circuit boards from contacting adjacent equipment, conductors, and housings.

4. Inductive loads such as relays and contactors throughout the system must have suppression devices to dissipate inductive energy that is released when power is removed from the coil. If the suppression devices are not shown on the MSHA approval documentation, the user or manufacturer must apply to MSHA to update the approval to show these devices.

5. The use of ferrite cores is optional and reserved for cases where the noise can not be suppressed at the source or adequately shielding does not provide complete isolation. The ferrite can be placed on any cables entering or leaving the power supply and display unit.

The instruction manual and technical bulletins for the CSE 140B Methane Monitor System must be read and understood completely before operating or servicing any CSE 140B Methane Monitor System. The CSE 140B Methane Monitor System must be operated and serviced by qualified personnel only. Service by unqualified personnel or substitution of components may void intrinsic safety of the CSE 140B Methane Monitor System.

If you have any questions please contact customer service at 412-856-9200.

Sincerely,

Scott A. Shearer
President